

**RESPONSE**

In view of the following remarks, the Examiner is requested to allow Claims 1, 18, 27-29, 53, 55, 57 and 59-63, the only claims pending and under examination in this application.

Claims 1, 53, and 57 have been amended to include the elements of "a treated surface of said backing element", and "wherein said treated surface of said backing element is exposed to the interior of said array assay chamber." Support for the amendments can be found in the claims as originally filed and throughout the specification at, for example, page 23, paragraph [0072], and page 43, paragraph [00125]. No new matter has been added.

In addition, Claim 1 has been amended to remove the elements of "(1) depositing SiO<sub>2</sub> on said gasket, and (2) contacting said gasket with at least one of a liquid phase and a vapor phase," which have been incorporated into new Claim 63.

New Claim 63 has been added. Support for new Claim 63 can be found in the claims as originally filed and throughout the specification at, for example, pages 13-14, paragraph [0050], page 26, paragraphs [0077]-[0078], and page 27, paragraph [0081]. No new matter has been added.

**Rejection under 35 U.S.C. § 102(b)/103(a) – Item 4 (Office Action, page 4)**

Claims 1, 28, 53, 57, and 61 have been rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by or, in the alternative, rendered obvious under 35 U.S.C. § 103(a) by Audino et al. (U.S. Patent Publication No. 2002/0083686).

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.

*Verdegaal Bros. v. Union Oil of California*, 814 F.2d 628, 631; 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987).

Similarly, to establish a *prima facie* case of obviousness, the prior art reference, or references when combined, must teach or suggest all the claim limitations. *In re Royka*, 180 U.S.P.Q. 580 (CCPA 1974).

Claim 28 depends from Claim 1 and Claim 61 depends from Claim 57. In the spirit of expediting prosecution and without conceding to the correctness of the rejection, Claims 1, 53 and 57 have been amended to clarify that the backing element comprising a gasket is treated to provide "a treated surface of said backing element" and that the treated surface of the backing element is "exposed to the interior of said array assay chamber".

Audino teaches a device comprising a multi-well plate with a laminate layer over the top of the multi-well plate producing a series of individual sealed wells. (See Audino, Figures 1-3 and page 2, paragraph [0020]). The Examiner equates the cross-linked elastomer of the laminate layer to the gasket of the present claims. However, the cross-linked elastomer does not have a treated surface that is exposed to the interior of a sealed chamber.

Instead, Audino teaches that a polypropylene film, not an elastomer, is corona treated on one side. Then the corona treated side is coated with a cross-linked elastomer. (See Audino; page 3, paragraph [0028]). Thus, the corona treated surface of the polypropylene film is sandwiched between a layer of polypropylene film and a layer of cross-linked elastomer. (See Audino, Figures 3-4). The untreated cross-linked elastomer is then used to seal the polypropylene plates. (See Audino, page 3, paragraph [0028]). As such, Audino does not disclose that the "treated surface of said backing element is exposed to the interior of said array assay chamber," as claimed in the present invention.

Therefore, the Applicants contend that Audino neither anticipates nor renders obvious the rejected claims because Audino fails to disclose every element of the rejected claims. In view of the above, the Applicants respectfully request that the 35 U.S.C. § 102(b) and 35 U.S.C. § 103(a) rejections of Claims 1, 28, 53, 57, and 61 be withdrawn.

**Rejection under 35 U.S.C. § 103(a) – Item 5 (Office Action, page 6)**

Claims 18, 27, 55, and 59-60 have been rejected under 35 U.S.C. §103(a) as being unpatentable for allegedly being rendered obvious by Audino et al. (U.S. Patent Publication No. 2002/0083686).

Claims 18 and 27 depend from Claim 1; Claim 55 depends from Claim 53; and Claims 59-60 depend from Claim 57. As noted above, Claims 1, 53, and 57 have been amended to clarify that the backing element comprising a gasket is treated to provide “a treated surface of said backing element” and that the treated surface of the backing element is “exposed to the interior of said array assay chamber”.

As discussed above, Audino does not disclose or suggest that the “treated surface of said backing element is exposed to the interior of said array assay chamber,” as claimed in the present invention.

Since Audino fails to teach or suggest every limitation as found in the claims, the Applicants contend that a *prima facie* case of obviousness has not been established. Therefore, the Applicants respectfully request that the 35 U.S.C. § 103(a) rejection of Claims 18, 27, 55, and 59-60 be withdrawn.

**Rejection under 35 U.S.C. § 103(a) – Item 6 (Office Action, page 7)**

Claims 29 and 62 have been rejected under 35 U.S.C. § 103(a) as being unpatentable for allegedly being rendered obvious by Audino et al. (U.S. Patent Publication No. 2002/0083686), in view of Gillmor et al. (U.S. Patent Publication No. 2003/0207099).

The Examiner acknowledges that Audino fails to teach treating the sealing member surface (gasket) with sequential treatments of at least two treatments chosen from the group of plasma, or UV + O<sub>2</sub>, or a solvent. Thus, the Examiner relies on Gillmor for its disclosure of a process of forming a polymer membrane with two consecutive plasma treatments.

As discussed above, Audino fails to disclose or suggest that the "treated surface of said backing element is exposed to the interior of said array assay chamber," as claimed in the present invention. Since Gillmor was cited solely for its disclosure of consecutive plasma treatments, Gillmor fails to cure the deficiency of Audino. In particular, the combination of references still fails to disclose that the treated surface of the backing element is exposed to the interior of the array assay chamber.

As such, the cited combination of references fails to disclose all the limitations found in the claims of the present invention. Therefore, the Applicants contend that the combination of Audino and Gillmor does not render Claims 29 and 62 obvious and respectfully request that the 35 U.S.C. § 103(a) rejection be withdrawn.

**Rejection under 35 U.S.C. § 103(a) – Item 7 (Office Action, page 8)**

Claims 1, 18, 27-29, 53, 55, 57 and 59-61 have been rejected under 35 U.S.C. § 103(a) as being unpatentable for allegedly being rendered obvious by Desrosiers et al. (U.S. Patent No. 6,410,332) or Dunnington et al. (U.S. Patent No. 6,376,256) or Stanchfield et al. (U.S. Patent No. 6,054,100), in view of Matsuzawa et al. (JP2000-300670 A), and further in view of Audino et al. (U.S. Patent Publication No. 2002/0083686) or Blackburn (U.S. Patent No. 6,875,619).

Claims 18 and 27-29 depend from Claim 1; Claim 55 depends from Claim 53; and Claims 59-61 depend from Claim 57. As noted above, Claims 1, 53, and 57 have been amended to clarify that the backing element comprising a gasket is treated to provide "a treated surface of said backing element" and that the treated surface of the backing element is "exposed to the interior of said array assay chamber".

The Examiner alleges that either Desrosiers, Dunnington, or Stanchfield disclose the use of gaskets for joining multi-well structures for chemical sampling and analysis or synthesis. The Examiner acknowledges that all of these primary references are deficient in that they all fail to disclose how the gasket is formed or prepared. Thus, to remedy the deficiencies of the primary references, the Examiner relies upon Matsuzawa for its alleged disclosure of plasma gasket forming procedures, and either

Audino or Blackburn for their alleged disclosure of the use of sealed addressable array structures in testing processes.

The Applicants respectfully disagree and contend that a *prima facie* case of obviousness has not been established because the cited combination fails to teach or suggest every element of the rejected claims.

Desrosiers is directed to a method of analyzing reaction mixtures by contacting a fluid sample with a sorbent. (See Desrosiers, column 3, lines 25-50). Desrosiers discloses optional first and second gaskets, which can be any inert, resilient material, and which provide stress relief, and help prevent cross contamination of reaction mixtures. (See Desrosiers, column 7, line 57 to column 8, line 4).

Dunnington is directed to a process for depositing beads in two-dimensional arrays. (See Dunnington, column 1, lines 10-18). Dunnington discloses a chemically resistant elastomeric sheet used to isolate the upper ends of capillary tube from one another. (See Dunnington, column 9, lines 46-59).

Stanchfield is directed to a multi-well synthesis and filtration apparatus for performing multiple, simultaneous chemical reactions and workups on a micro scale. (See Stanchfield, column 6, lines 54-60). Stanchfield discloses first and second sheet gaskets used to seal the tops of the wells and the outlet spouts on a synthesis block. (See Stanchfield, column 9, line 56 to column 10, line 5).

However, none of the primary references cited by the Examiner disclose the elements of a treated surface of a backing element and that the treated surface of the backing element is exposed to the interior of the array assay chamber, as claimed by the Applicants.

Matsuzawa was cited for its disclosure of a method of treating a gasket with plasma to improve its sealing properties. Matsuzawa is actually directed to treating resin material of a syringe so that the plunger can slide freely within the inner wall of the syringe cylinder. (See Matsuzawa, Abstract). As such, Matsuzawa fails to remedy the

deficiencies of the primary references cited by the Examiner. In particular, Matsuzawa fails to disclose the claimed elements of a treated surface of a backing element and that the treated surface of the backing element is exposed to the interior of the array assay chamber.

Finally the Examiner relies upon either Audino or Blackburn for their alleged disclosure of the use of sealed addressable array structures in testing processes. As discussed above, Audino is deficient because it fails to disclose that the "treated surface of said backing element is exposed to the interior of said array assay chamber," as claimed in the present invention.

Blackburn is directed to microfluidic devices with biochannels or microchannels comprising arrays to capture target analytes in samples. (See Blackburn, column 11, line 65 to column 12, line 2). Blackburn discloses the use of O-rings or gaskets to seal individual well structures in the apparatus. (See Blackburn, column 62, lines 41-69). However, Blackburn also fails to disclose the elements of a treated surface of a backing element and that the treated surface of the backing element is exposed to the interior of the array assay chamber, as claimed by the Applicants.

Therefore, the Applicants contend that a *prima facie* case of obviousness has not been established because the cited combination of references fails to disclose or suggest all the elements of the rejected claims. Consequently, the Applicants contend that the cited combination of references does not render Claims 1, 18, 27-29, 53, 55, 57 and 59-61 obvious and respectfully request that the 35 U.S.C. § 103(a) rejection be withdrawn.

**Rejection under 35 U.S.C. § 103(a) – Item 9 (Office Action, page 11)**

Claims 1, 18, 27-29, 53, 55, 57, and 59-62 have been rejected under 35 U.S.C. § 103(a) as being unpatentable for allegedly being rendered obvious by Blackburn (U.S. Patent No. 6,875,619), in view of Matsuzawa et al. (JP2000-300670 A).

The Examiner alleges that Blackburn substantially discloses the claimed invention, but is deficient in that it fails to disclose any particular treatments for the O-

rings or gaskets. Thus, the Examiner relies upon Matsuzawa to remedy the deficiencies of Blackburn.

As discussed above, Blackburn discloses the use of O-rings or gaskets to seal individual well structures in the apparatus, but Blackburn does not disclose the elements of a treated surface of a backing element and that the treated surface of the backing element is exposed to the interior of the array assay chamber, as claimed by the Applicants. In addition, as indicated above, Matsuzawa is directed to treating resin material of a syringe so that the plunger can slide freely within the inner wall of the syringe cylinder, but Matsuzawa fails to disclose the claimed elements of a treated surface of a backing element and that the treated surface of the backing element is exposed to the interior of the array assay chamber. As such, Matsuzawa fails to remedy the deficiencies of Blackburn and, therefore, the cited combination of references does not disclose or suggest all of the elements of the rejected claims.

Accordingly, since a *prima facie* case of obviousness has not been met, the combination of the cited references cannot render the present application obvious. As such, the Appellants respectfully request that the 35 U.S.C. § 103(a) rejection of Claims 1, 18, 27-29, 53, 55, 57, and 59-62 be withdrawn.

**Rejection under 35 U.S.C. § 103(a) – Item 10 (Office Action, page 12)**

Claims 1, 18, 27-28, 53, 55, 57, and 59-61 have been rejected under 35 U.S.C. § 103(a) for allegedly being obvious over Audino et al. (U.S. Patent Publication No. 2002/0083686), in view of Shumate (U.S. Patent Publication No. 2003/0082632). In addition, Claims 29 and 62 have been rejected under 35 U.S.C. § 103(a) for allegedly being obvious over Audino et al. (U.S. Patent Publication No. 2002/0083686), in view of Gillmor et al. (U.S. Patent Publication No. 2003/0207099), and further in view of Shumate (U.S. Patent Publication No. 2003/0082632).

Claims 18 and 27-29 depend from Claim 1; Claim 55 depends from Claim 53; and Claims 59-61 depend from Claim 57. As noted above, Claims 1, 53, and 57 have been amended to clarify that the backing element comprising a gasket is treated to

provide "a treated surface of said backing element" and that the treated surface of the backing element is "exposed to the interior of said array assay chamber".

The Examiner alleges that Audino discloses an array arrangement with separately sealed wells within a chamber used for array purposes. The Examiner then cites Shumate for its disclosure that: (1) microtiter devices and assay array devices may be considered equivalently; (2) arrays may be sealed with a separate film for each individual chamber, or a common film for all chambers; and (3) each individual assay site or chamber may be distinct, or may be connected to a general source. It is assumed that the Examiner cites Gillmor for its disclosure of a process of forming a polymer membrane with two consecutive plasma treatments, as discussed above.

As set forth above, Audino is deficient because Audino fails to disclose that the "treated surface of said backing element is exposed to the interior of said array assay chamber," as claimed in the present invention. Shumate merely discloses that the plurality of chambers in the device may be sealed by a common sealing film or a separate sealing film per chamber in the assembly. (See Shumate, page 11, paragraph [0134]). As such, Shumate fails to disclose the claimed element that the treated surface of the backing element is "exposed to the interior of said array assay chamber". Since Gillmor was apparently cited for its disclosure of consecutive plasma treatments, Gillmor fails to make up the deficiencies of Audino and Shumate. In particular, the combination of references still fails to teach that the treated surface of the backing element is exposed to the interior of the array assay chamber.

Therefore, the Applicants contend that a *prima facie* case of obviousness has not been established because the cited combination of references fails to disclose all the elements of the rejected claims. Consequently, the Applicants contend that the cited combination of Audino and Shumate does not render Claims 1, 18, 27-28, 53, 55, 57, and 59-61 obvious and the cited combination of Audino, Gillmor, and Shumate does not render Claims 29 and 62 obvious. Therefore, the Applicants respectfully request that the 35 U.S.C. § 103(a) rejections be withdrawn.

**Rejection for Nonstatutory Obviousness-Type Double Patenting – Item 12 (Office Action, page 13)**

Claims 1, 18, 27-29, 53, 55, 57, and 59-62 have been rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-36 of Barth et al. (U.S. Patent No. 6,682,702), in view of Matsuzawa et al. (JP2000-300670 A) or Audino et al. (U.S. Patent Publication No. 2002/0083686).

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy so as to prevent the unjustified timewise extension of the term of the "right to exclude" granted by a patent. *In re Goodman*, 11 F.3d 1046; 29 U.S.P.Q.2d 2010 (Fed. Cir. 1993). The analysis employed in an obviousness-type double patenting rejection parallels the guidelines for analysis of a 35 U.S.C. § 103(a) obviousness determination. *In re Braat*, 937 F.2d 589; 19 U.S.P.Q.2d 1289 (Fed. Cir. 1991). If the application at issue is the later filed application or both are filed on the same day, only a one-way determination of obviousness is needed in resolving the issue of double patenting, i.e., whether the invention defined in a claim in the application would have been an obvious variation of the invention defined in a claim in the patent. See e.g., *In re Berg*, 140 F.3d 1438; 46 U.S.P.Q.2d 1226 (Fed. Cir. 1998).

Claims 1-36 of the Barth patent are directed to methods for simultaneously conducting multiple chemical reactions in a reaction assembly that is sealed with a gasket by applying one or more of mechanical clamps, radiation, heat, external fluid pressure, vacuum, and an adhesive to the reaction assembly. The present claims are directed to forming an array assay chamber that is sealed by a gasket. However, the present claims are not obvious in view if the claims of the Barth patent. Specifically, the method claims of the instant application include at least one element, e.g. the treated surface of the backing element "exposed to the interior of said array assay chamber," that is not an obvious variation of the method claims of the Barth patent. As discussed above, neither Matsuzawa nor Audino disclose that the treated surface of the backing element is "exposed to the interior of said array assay chamber. Therefore, withdrawal of the nonstatutory obviousness-type double patenting rejection of Claims 1, 18, 27-29, 53, 55, 57, and 59-62 is respectfully requested.

**Rejection for Nonstatutory Obviousness-Type Double Patenting – Item 13 (Office Action, page 13)**

Claims 1, 18, 27-29, 53, 55, 57, and 59-62 have been rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 18-30, or claims 8-19 & 31-33, or claims 1-9 & 12-23, or claims 13-15, or claims 1-11 & 13-18 of copending Application No. 10/766,766, or 10/172,887, or 10/172,892, or 10/283,450, or 10/172,850, respectively, in view of Matsuzawa et al. (JP2000-300670 A) or Audino et al. (U.S. Patent Publication No. 2002/0083686).

The claims of the '766 application are directed to methods and apparatuses for simultaneously conducting multiple chemical reactions that include applying one or more of mechanical clamps, radiation, heat, external fluid pressure, vacuum, an adhesive and a pliable gasket to join an array and a plate. The claims of the '887 application are directed to fluid containment structures and methods of forming the same, including the use of a form-in-place gasket cured by moisture in the air, heating the gasket material, shining light on the gasket material, or contacting the gasket material with a catalyst. The claims of the '892 application are directed to methods of performing an array hybridization experiment, including the use of a form-in-place gasket positioned between a substrate and a cover. The claims of the '450 application are directed to array hybridization apparatuses and methods of making the same, including the use of a gasket interposed between a slide and a substrate. The claims of the '850 application are directed to assay chambers and methods of forming the same, including the use of a form-in-place gasket cured by moisture in the air, heating the gasket material, shining light on the gasket material, or contacting the gasket material with a catalyst.

The claims of the instant application are directed to forming an array assay chamber that is sealed by a gasket. However, the present claims are not obvious in view if the claims of the above cited applications. Specifically, the method claims of the instant application include at least one element, e.g. the treated surface of the backing element "exposed to the interior of said array assay chamber," that is not an obvious variation of the claims of the above cited applications. As discussed above, neither Matsuzawa nor Audino disclose that the treated surface of the backing element is

"exposed to the interior of said array assay chamber. Therefore, withdrawal of the nonstatutory obviousness-type double patenting rejection of Claims 1, 18, 27-29, 53, 55, 57, and 59-62 is respectfully requested.

**CONCLUSION**

In view of the amendments and remarks above, the Applicants respectfully submit that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone Bret E. Field at (650) 327-3400.

The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-1078, order number 10030712-1.

Respectfully submitted,

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